

Diagram illustrating the biosynthetic pathway of PHB (Polyhydroxybutyrate):

- Two molecules of acetyl CoA are converted to acetoacetyl CoA by the enzyme **PhbA** ( $\beta$ -ketothiolase). This step is reversible and involves the release of  $\text{HS-CoA}$ .
- Acetoacetyl CoA is reduced to (D)-3-hydroxybutyryl-CoA by the enzyme **PhbB** (acetoacetyl-CoA reductase). This step is reversible and involves the reduction of  $\text{NADPH}$  (at  $A_{340\text{nm}}$ ) to  $\text{NADP}^+$ .
- (D)-3-hydroxybutyryl-CoA is polymerized by the enzyme **PhbC** (synthase) to form PHB. This step is irreversible and involves the release of  $\text{HS-CoA}$ .

The final product, PHB, is shown as a repeating unit in brackets with a subscript  $n$ .

100

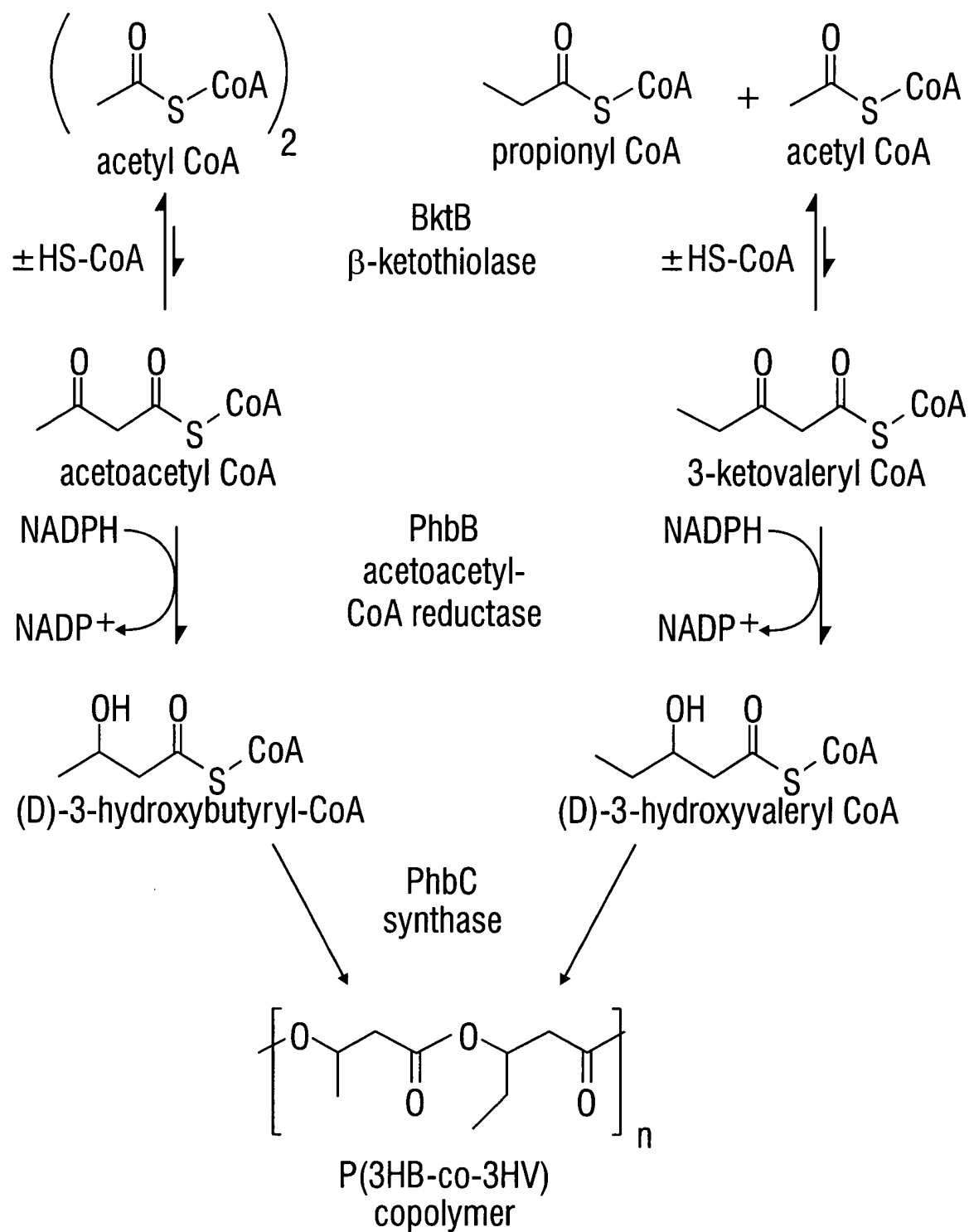


FIG. 2



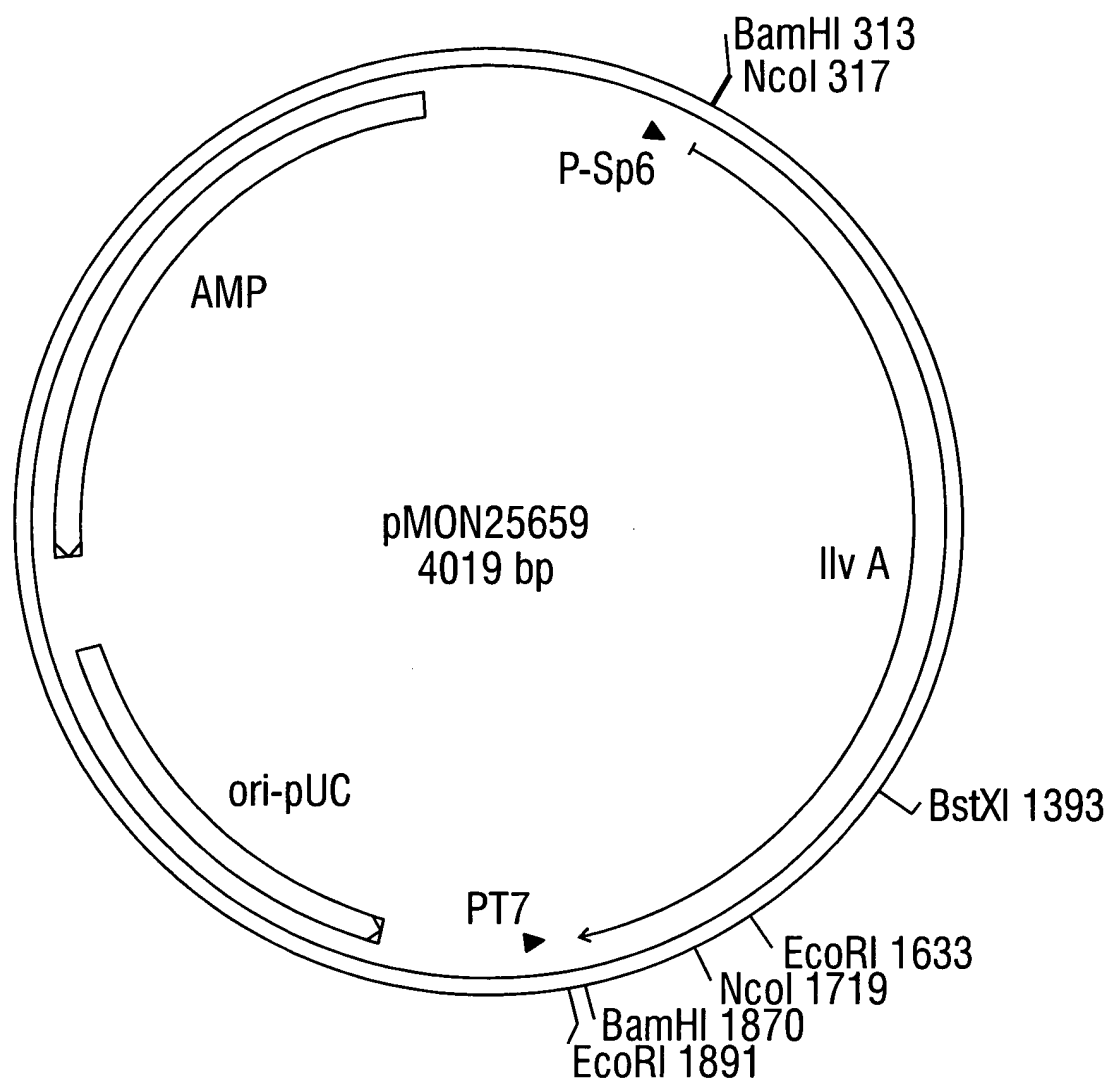


FIG. 4

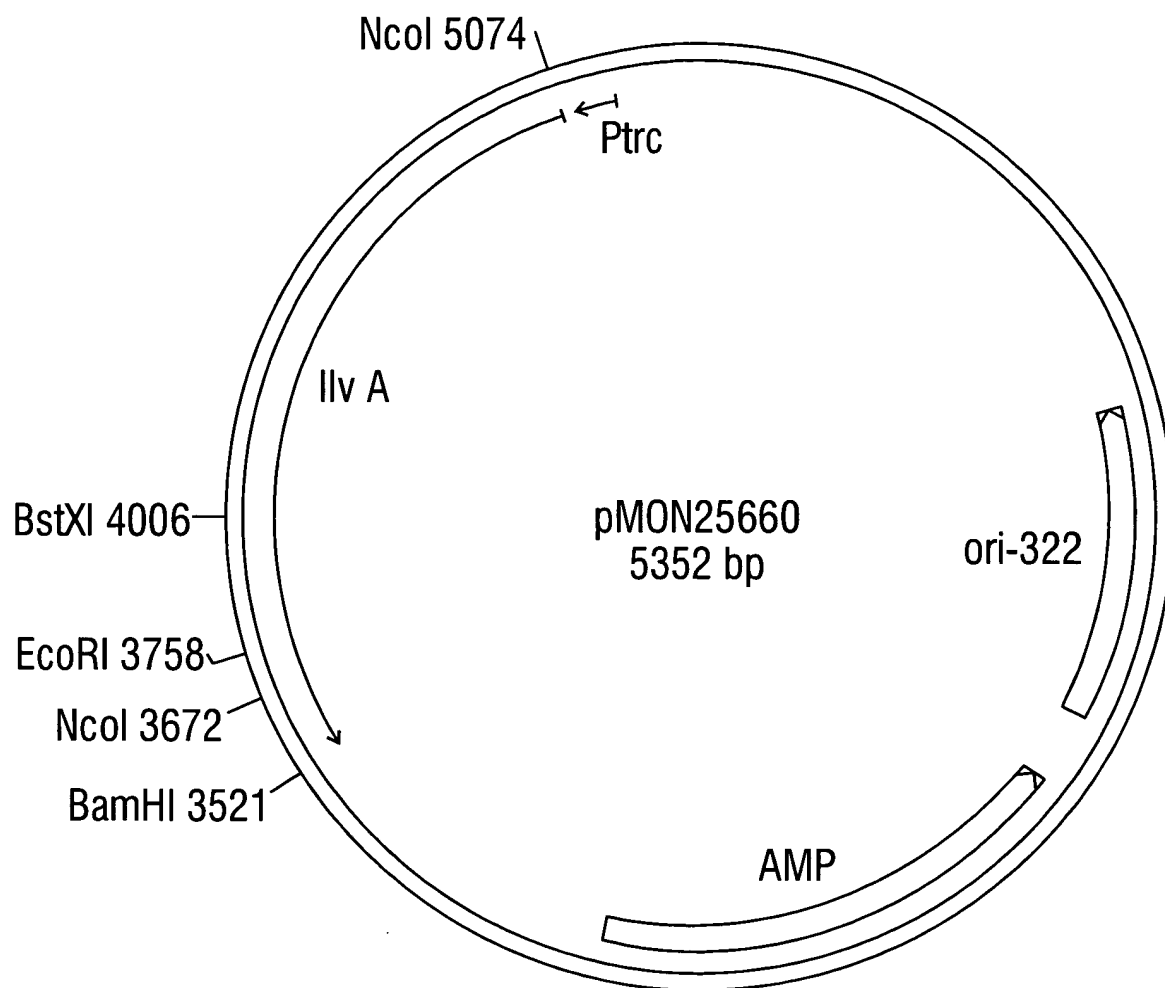


FIG. 5

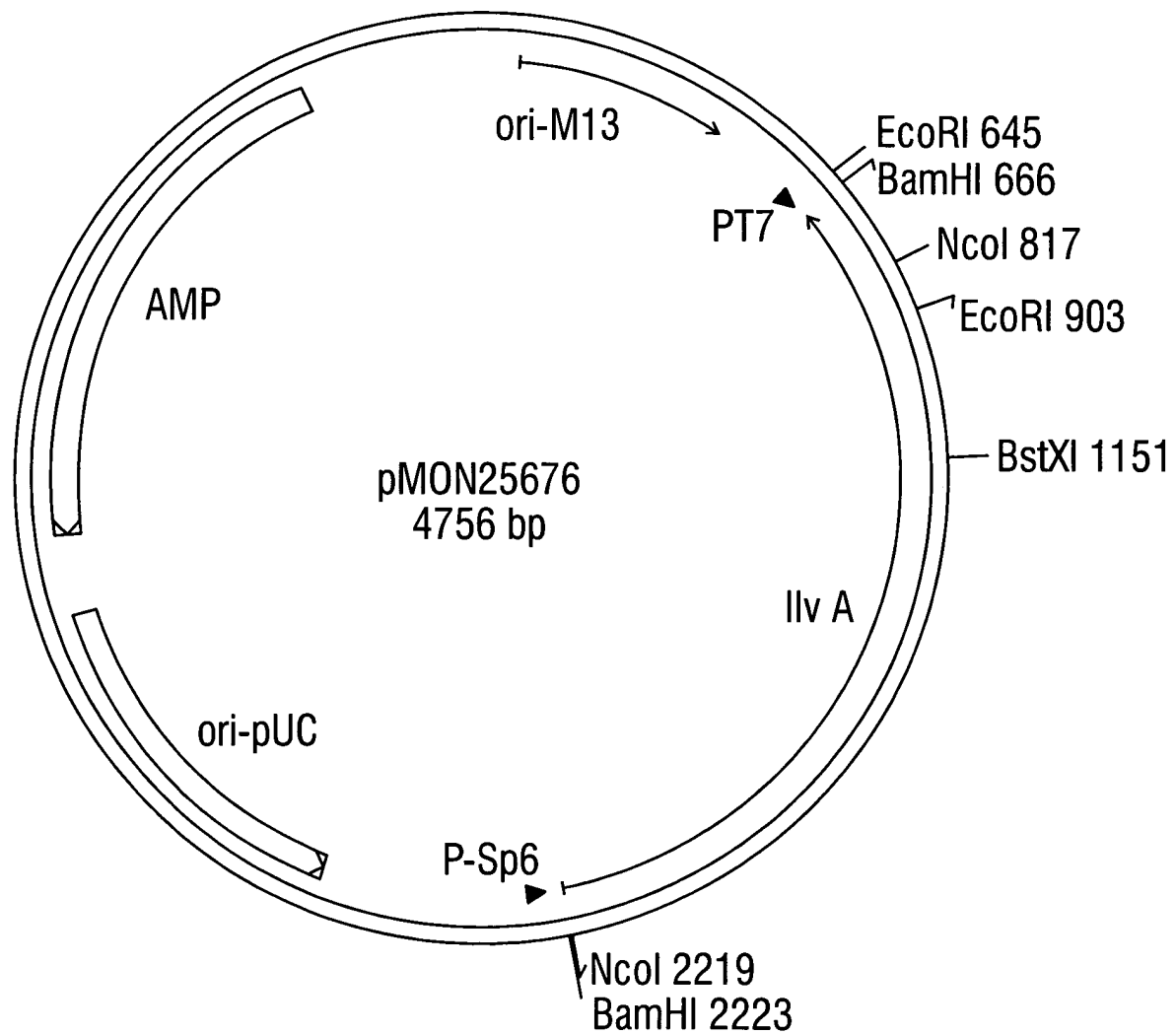


FIG. 6

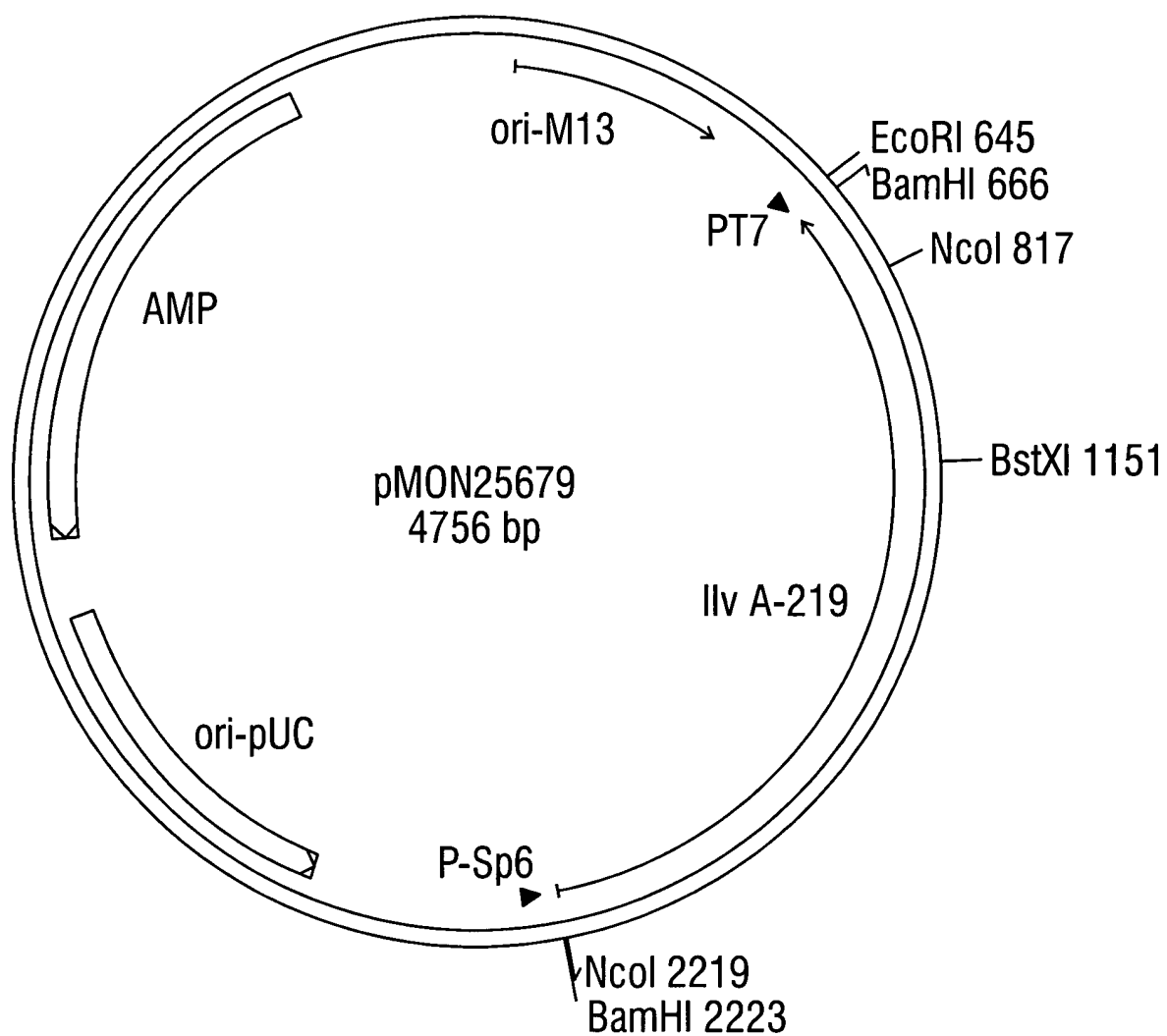


FIG. 7

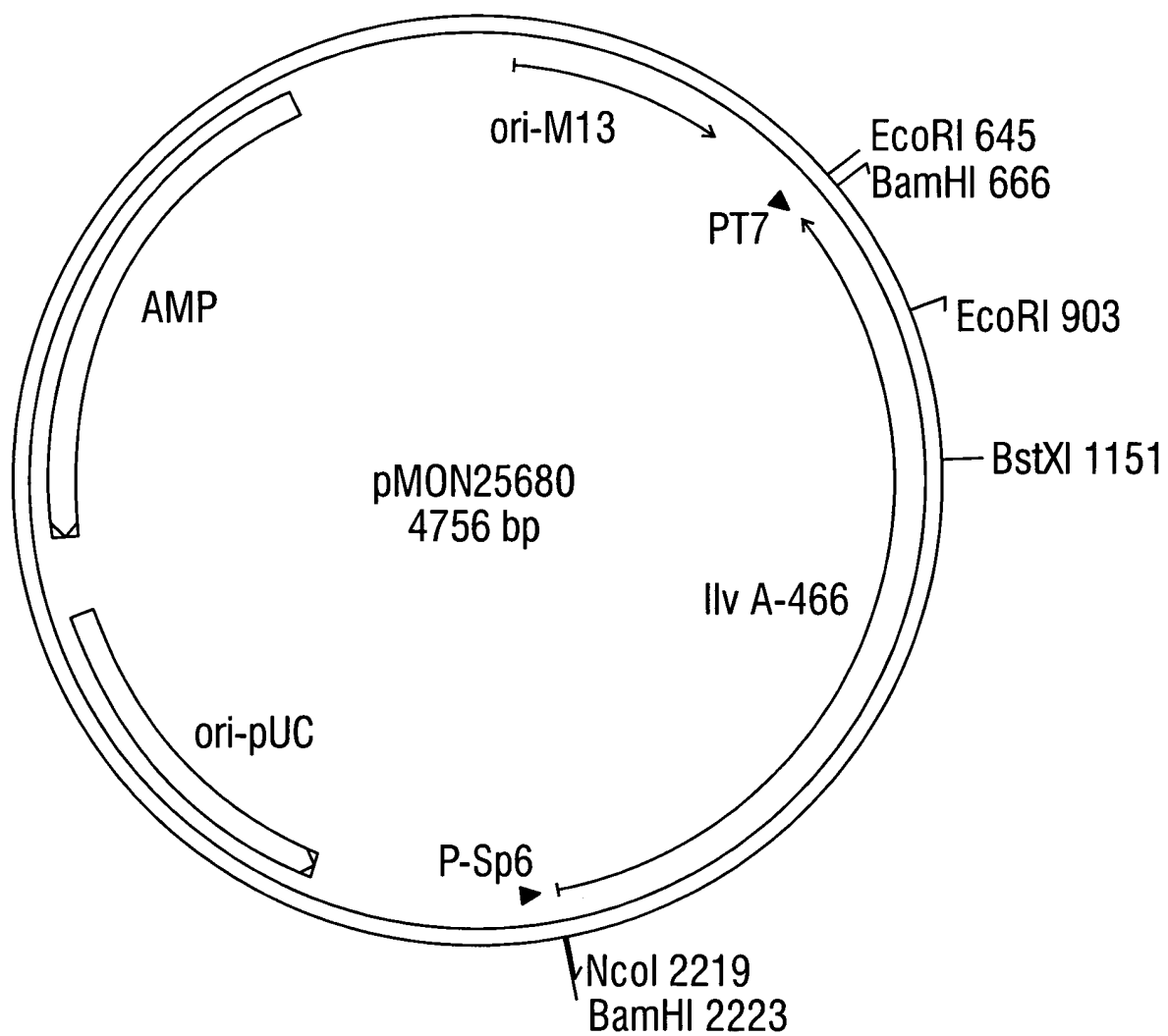


FIG. 8



Circular map of the pMON25681 plasmid (4756 bp). The map shows several key features: ori-M13 (top), PT7 (top right), EcoRI 645 and BamHI 666 (top right), BstXI 1151 (right), Ilv A-219/466 (bottom right), P-Sp6 (bottom), NcoI 2219 and BamHI 2223 (bottom), ori-pUC (bottom left), and AMP (left).

FIG. 9

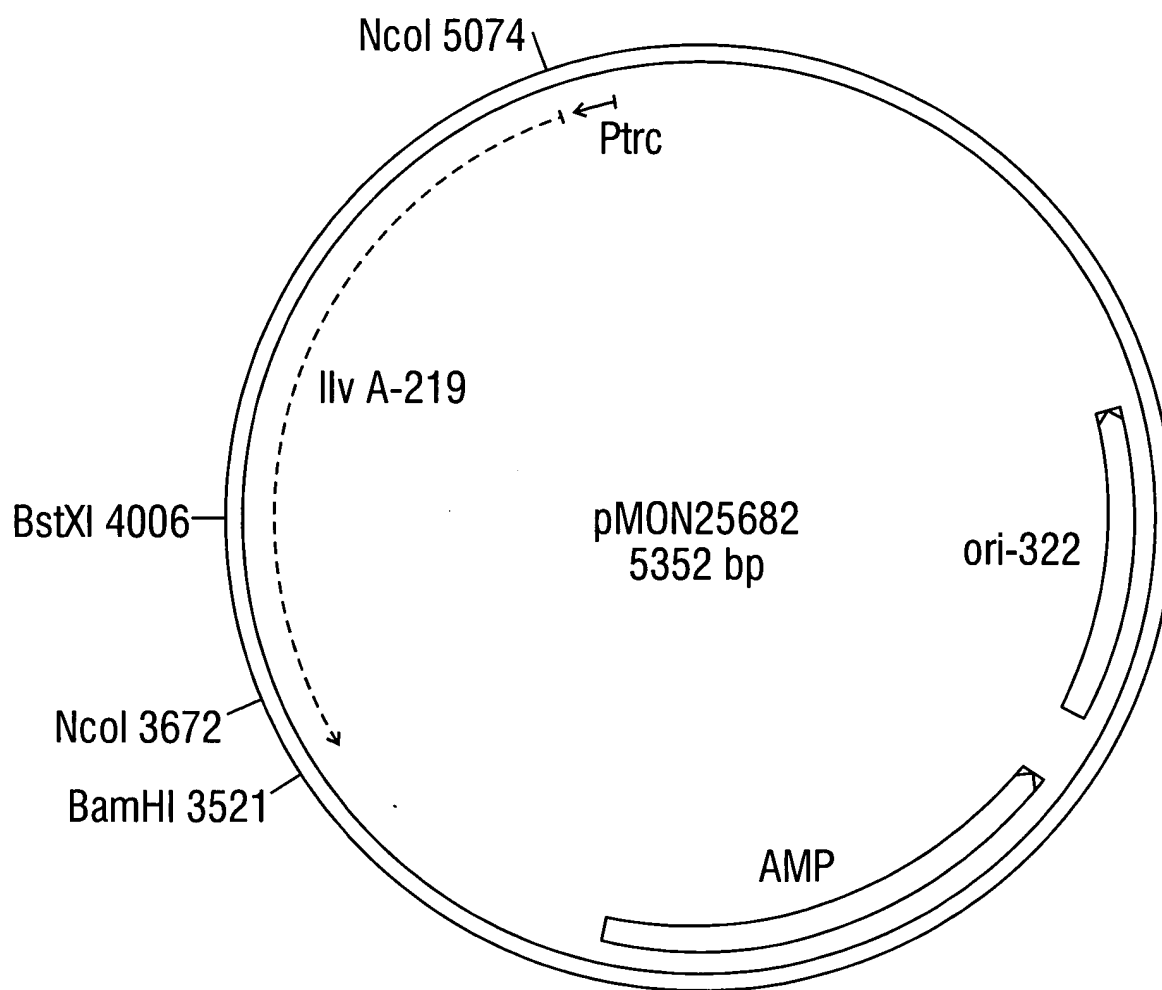


FIG. 10

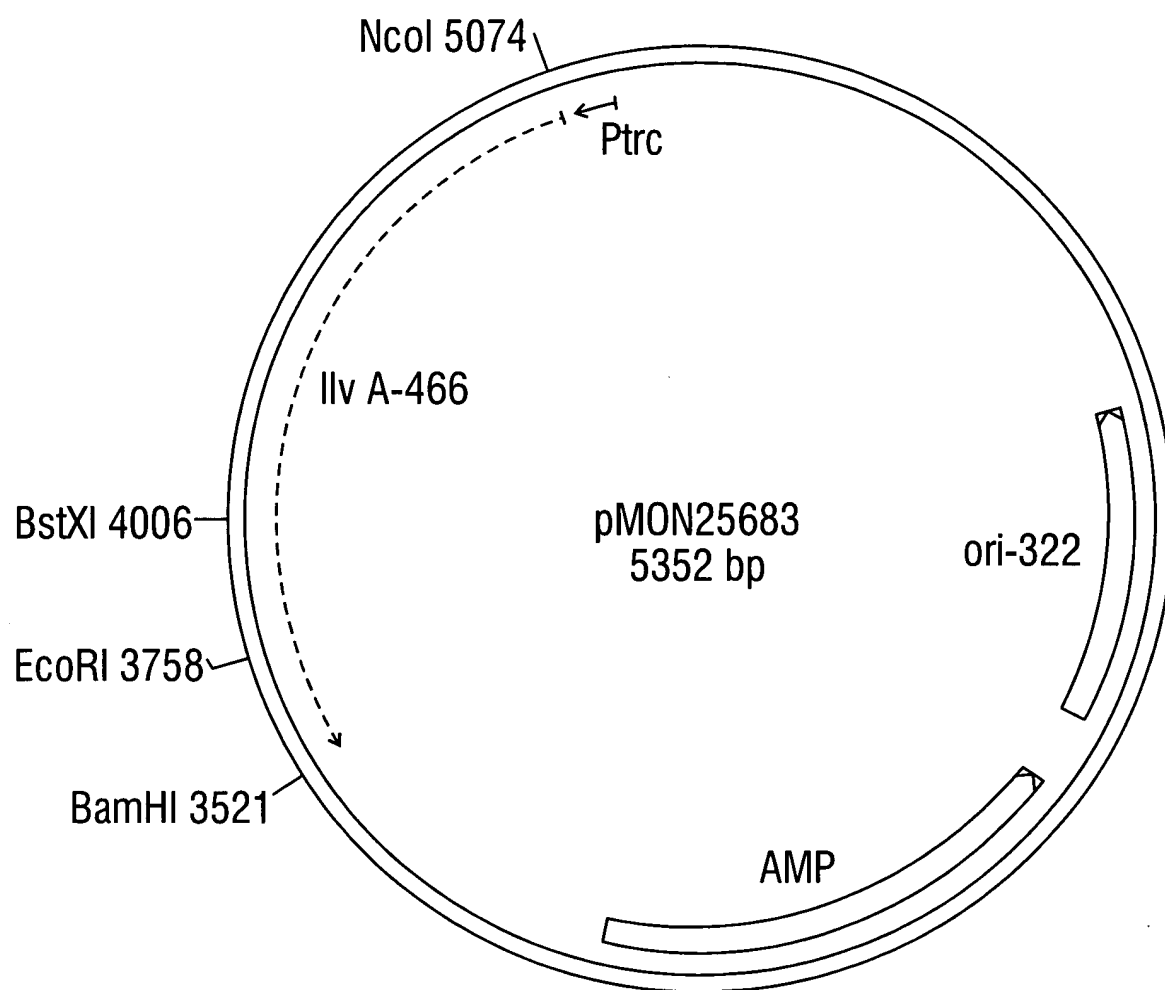


FIG. 11

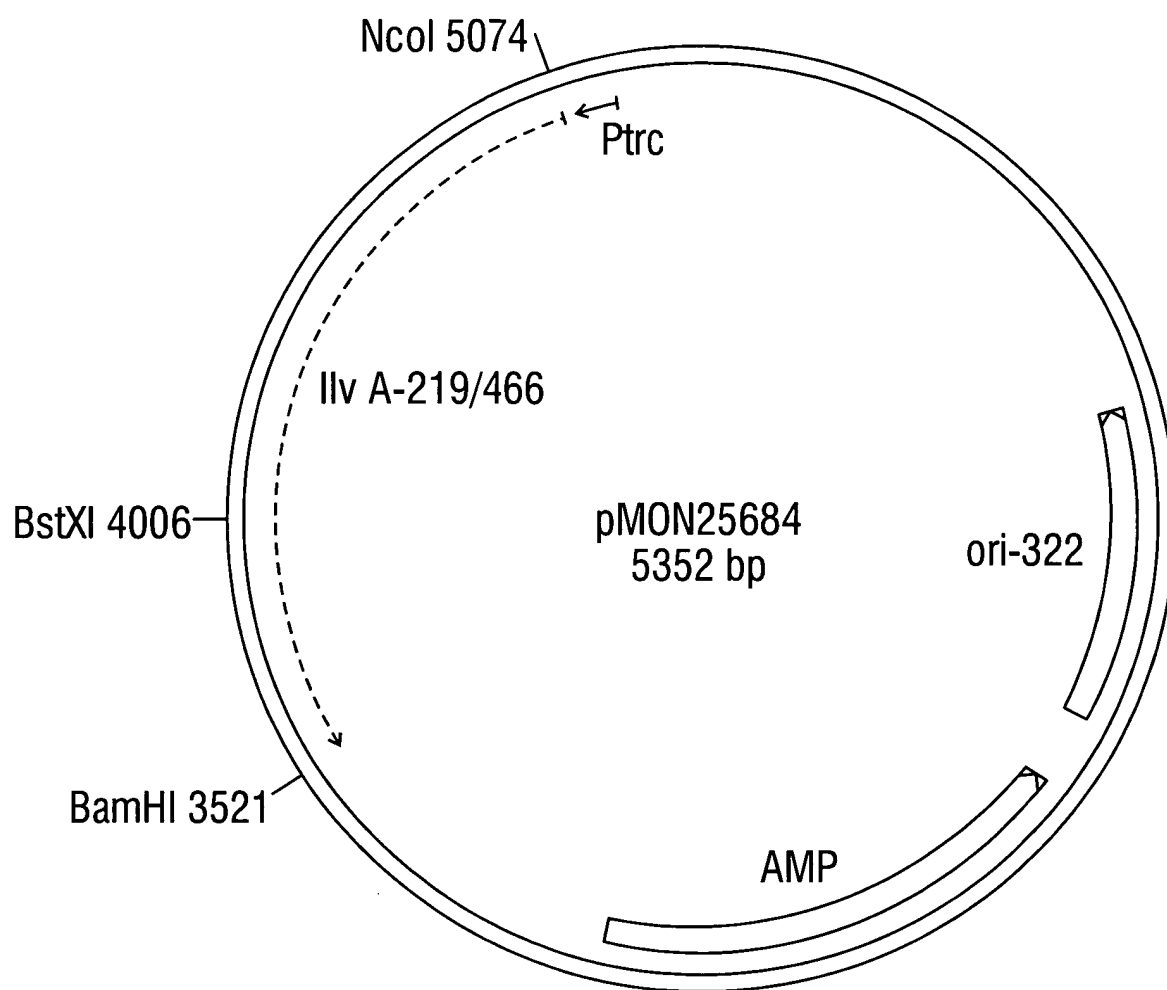


FIG. 12

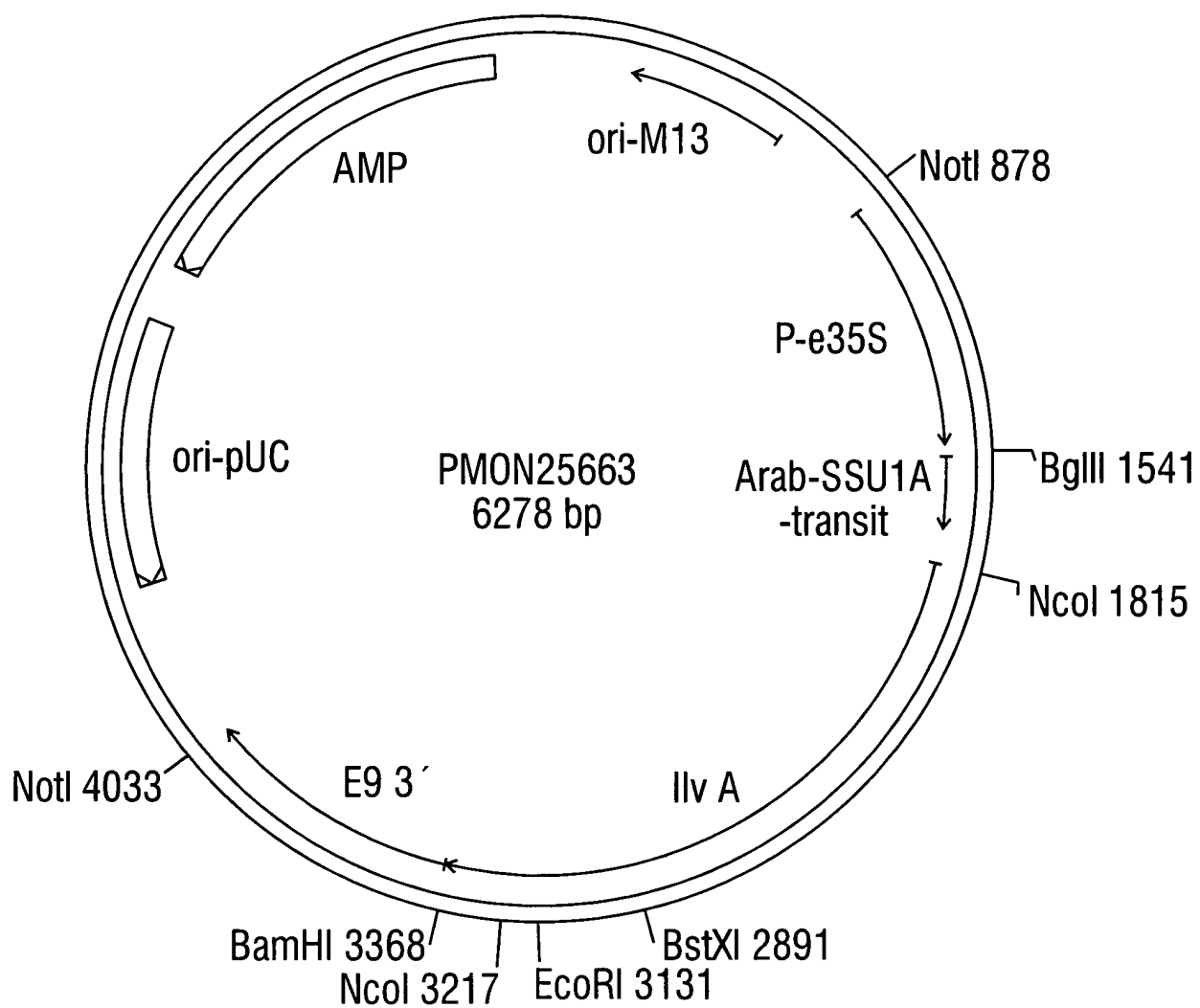


FIG. 13

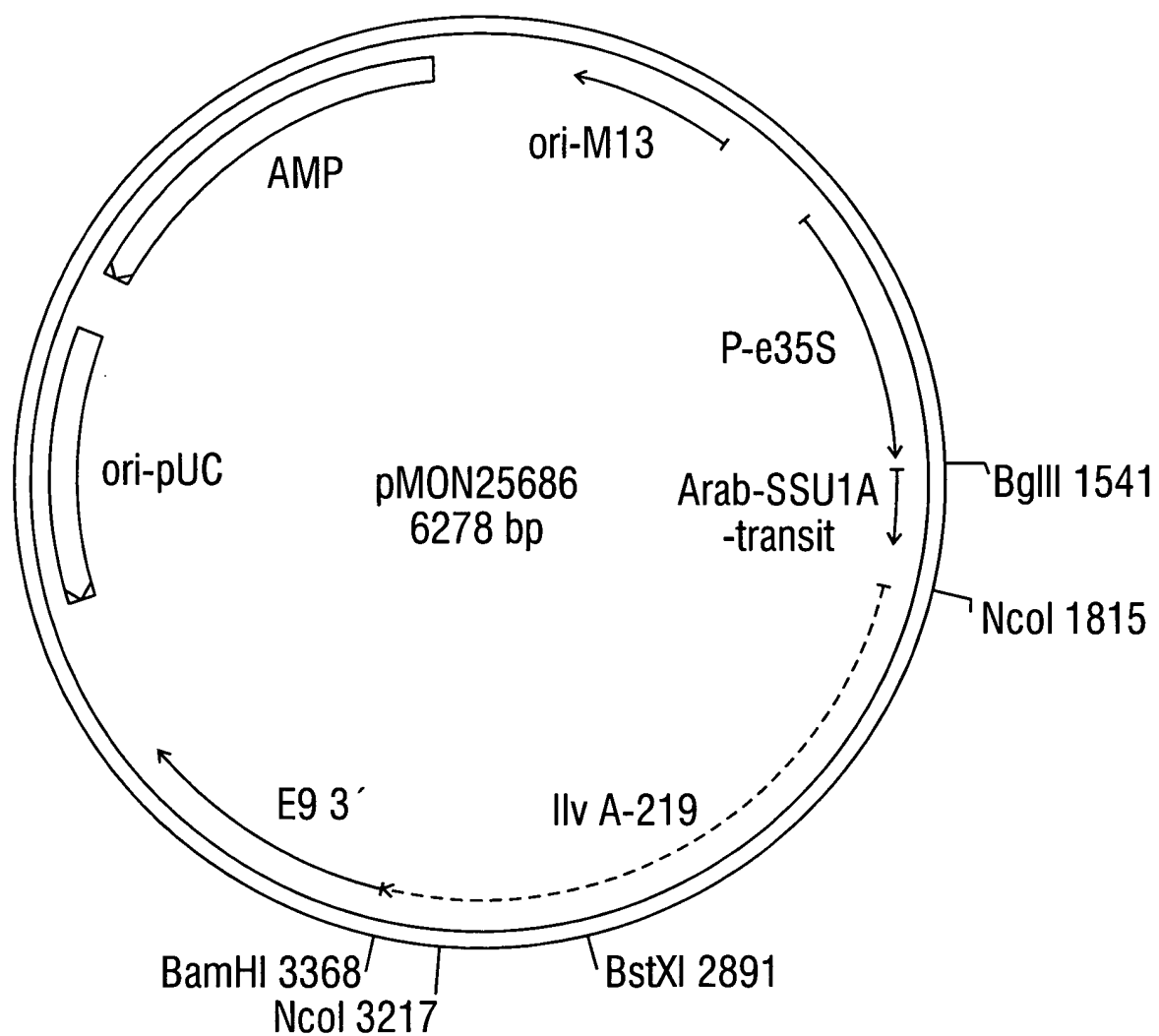


FIG. 14

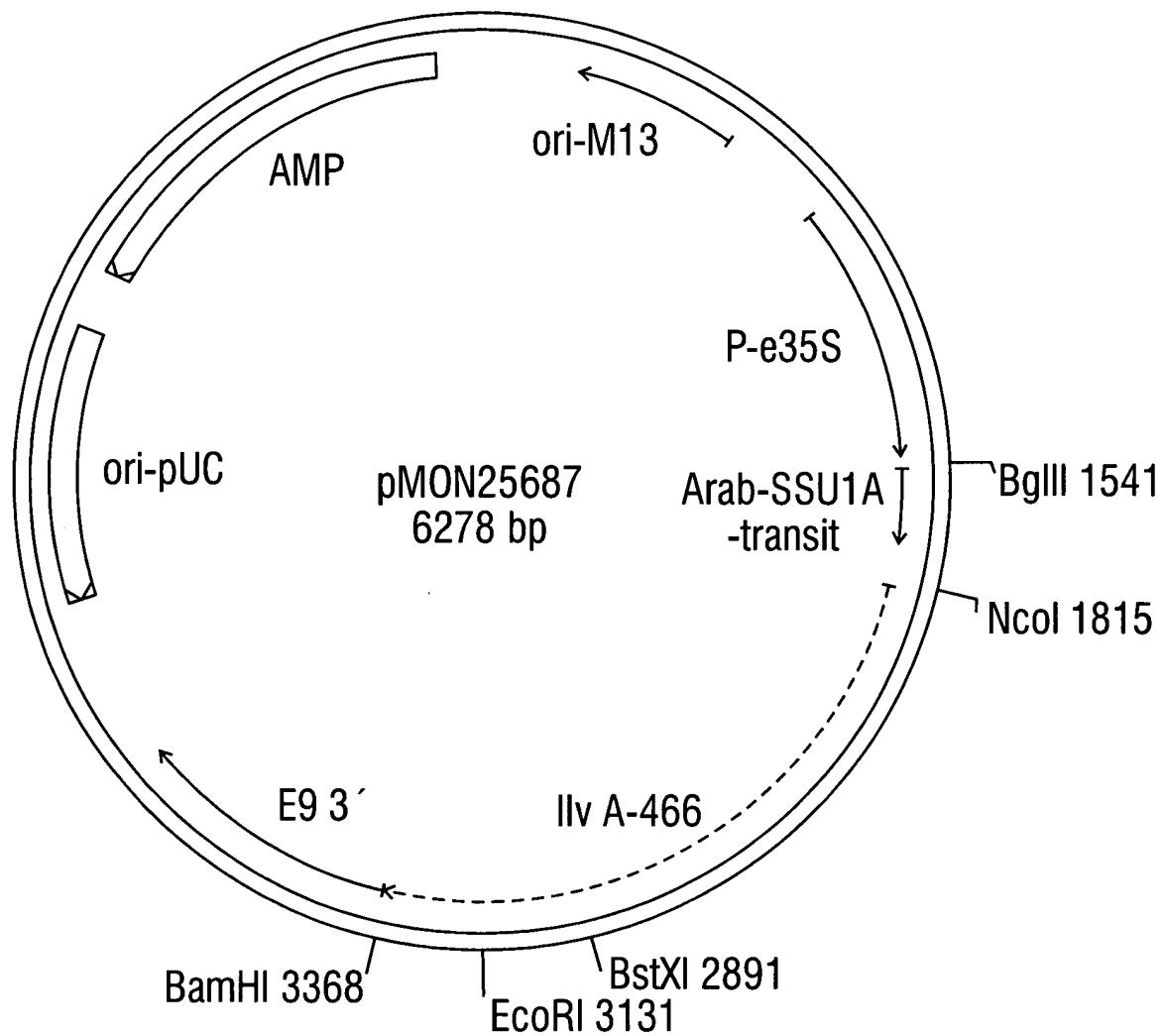


FIG. 15

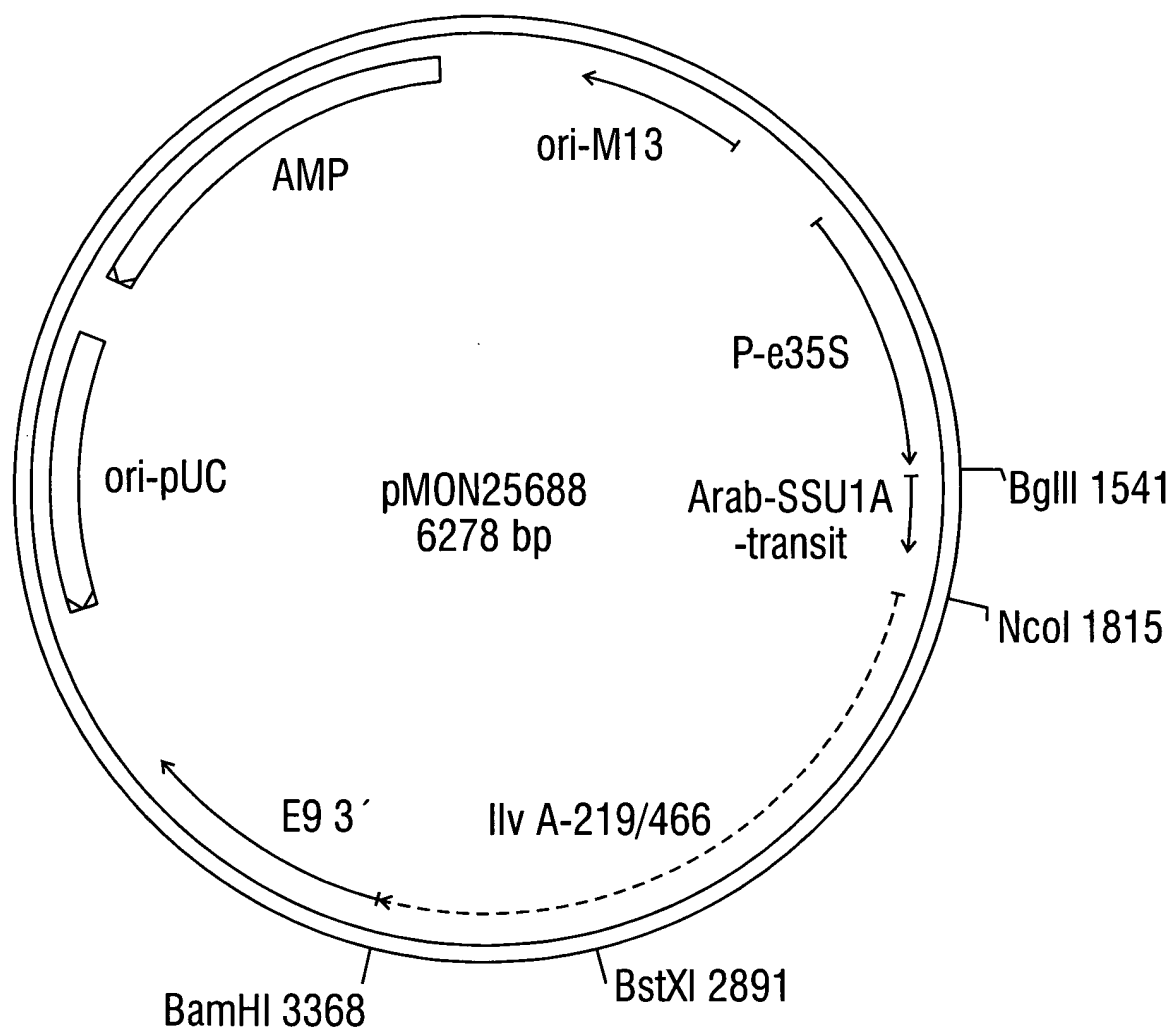


FIG. 16



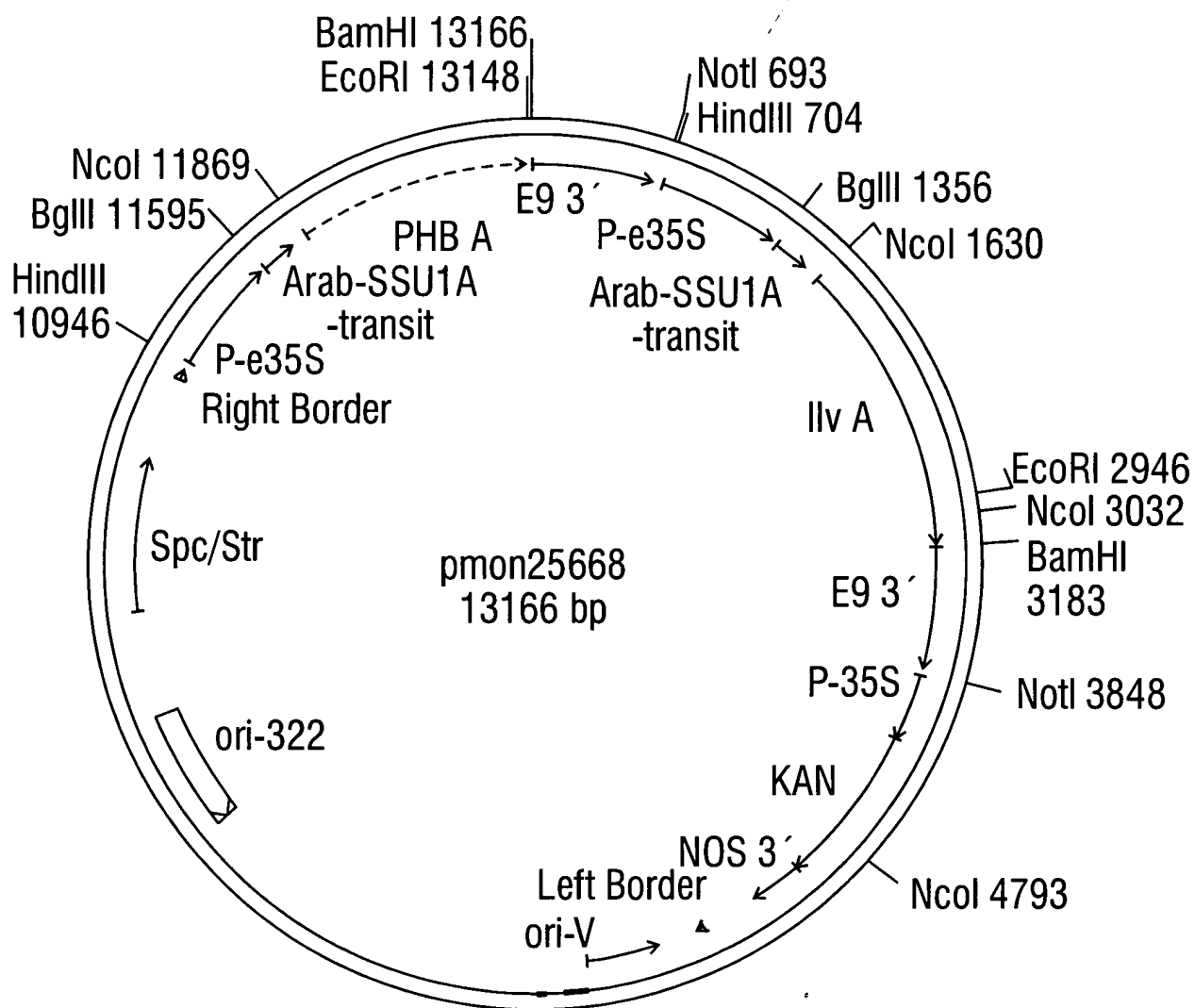


FIG. 17

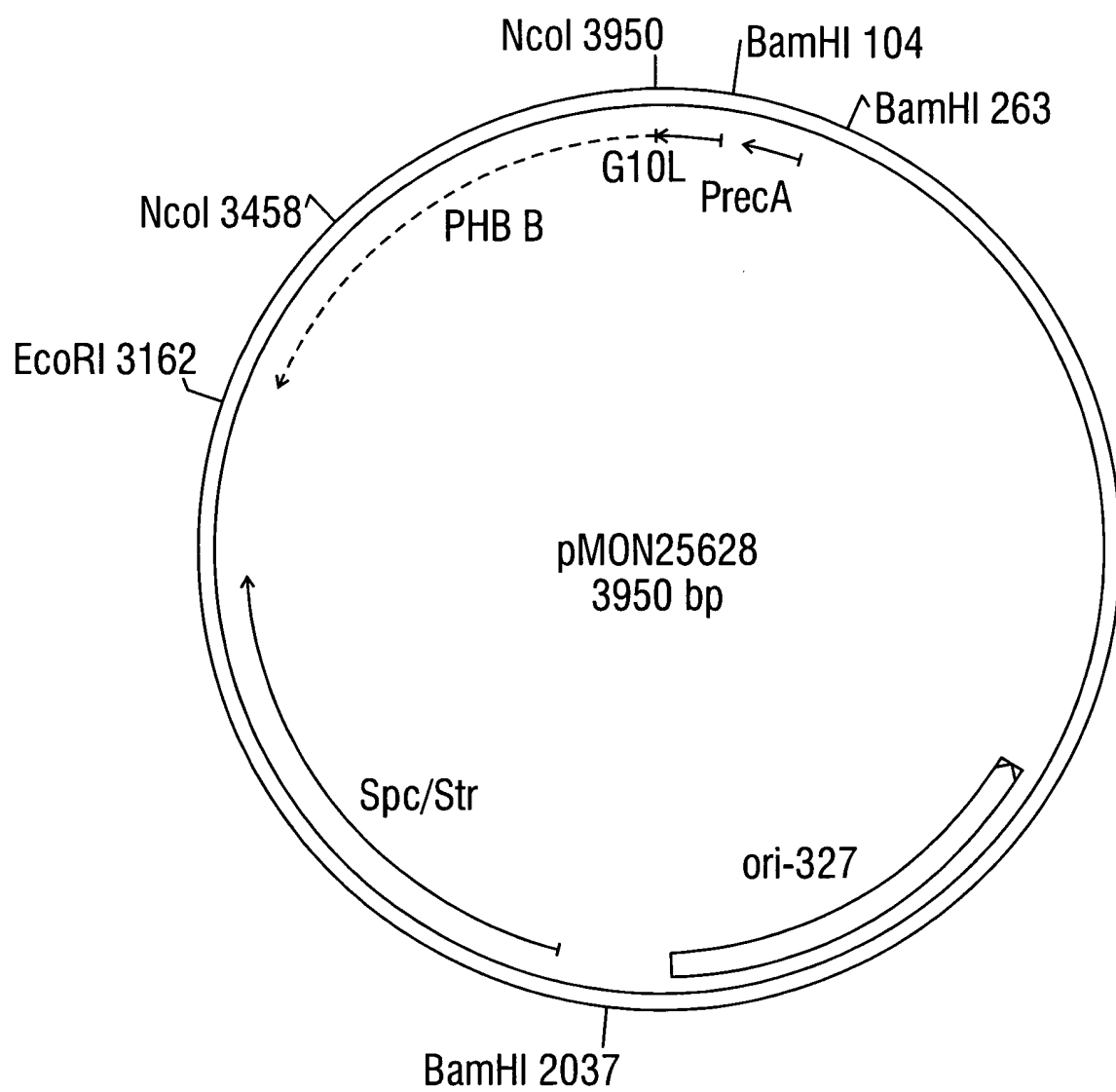


FIG. 18

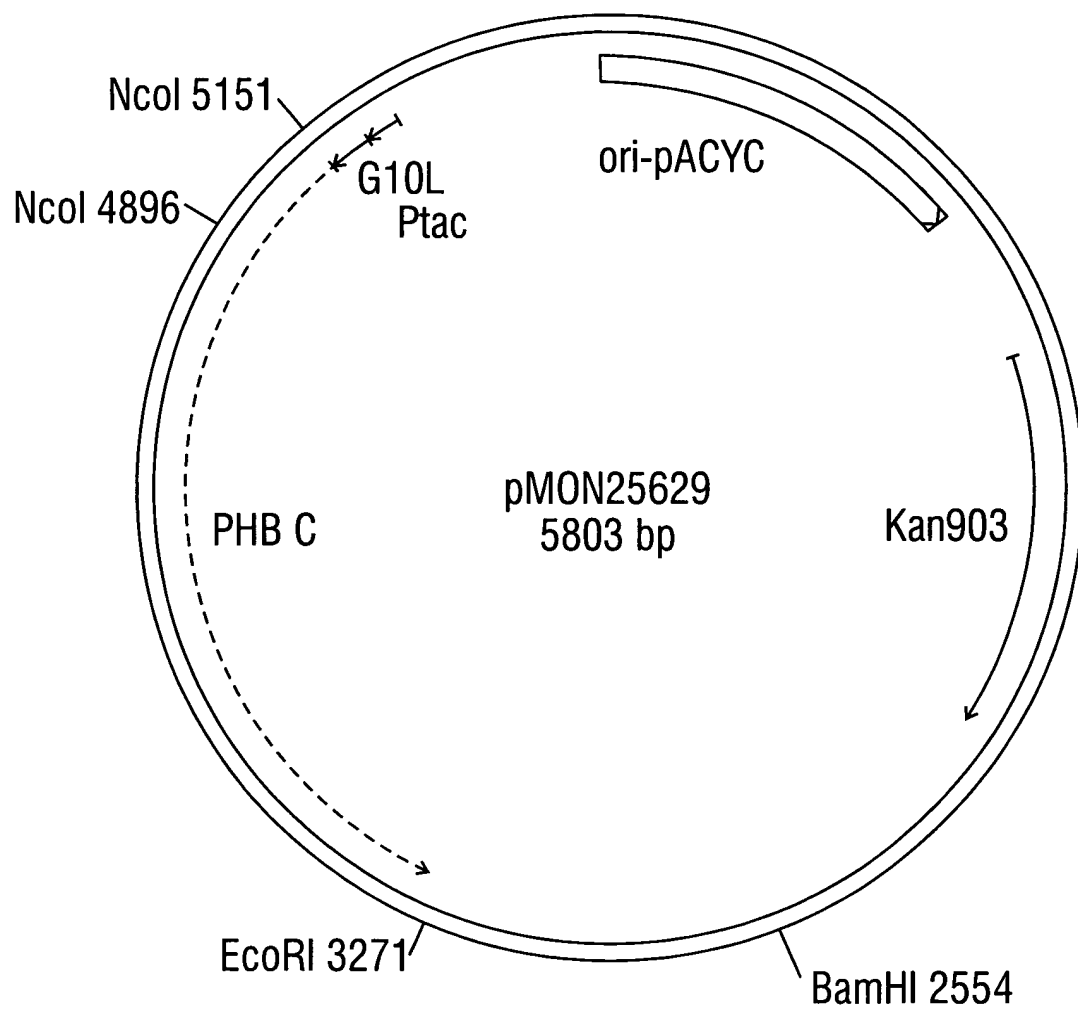


FIG. 19

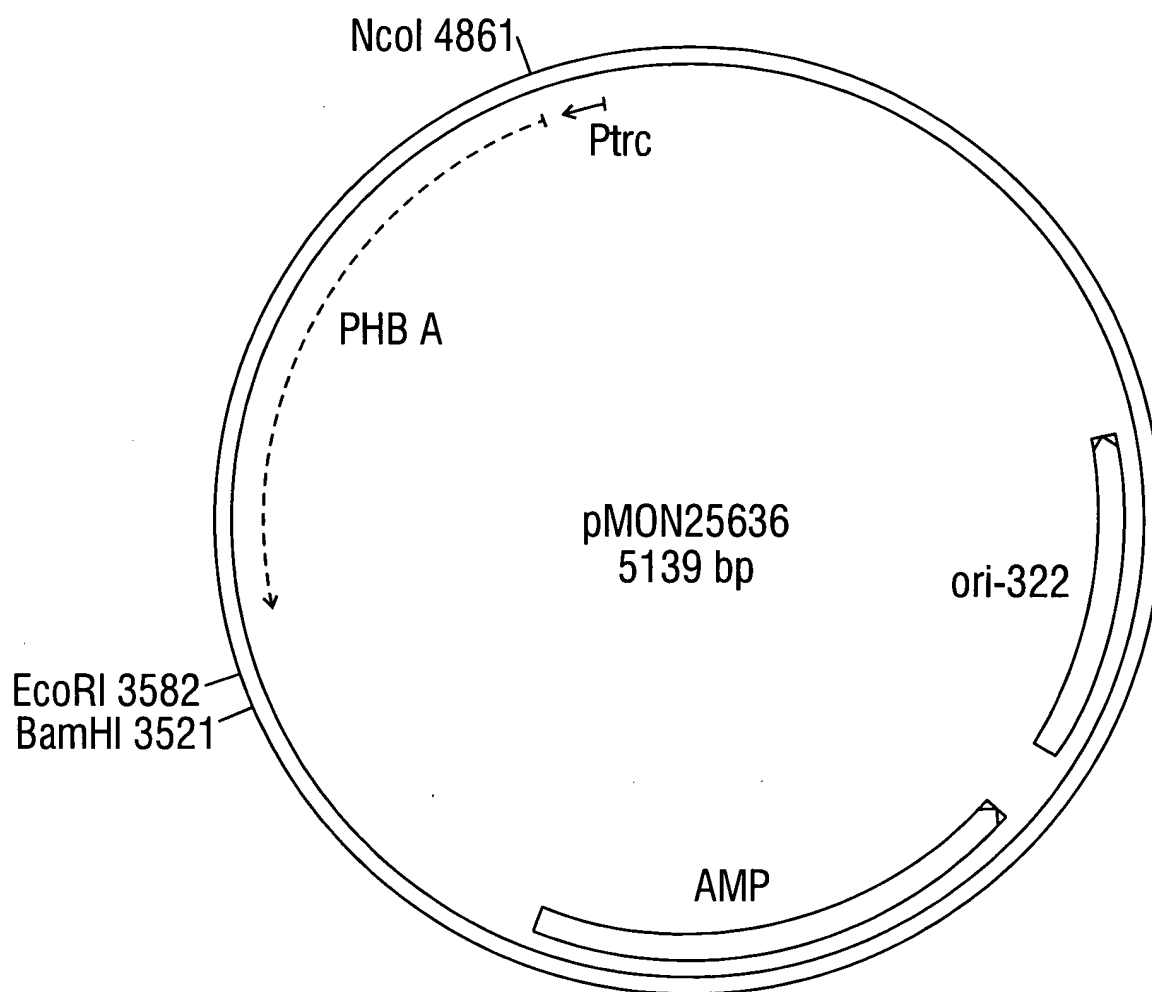


FIG. 20

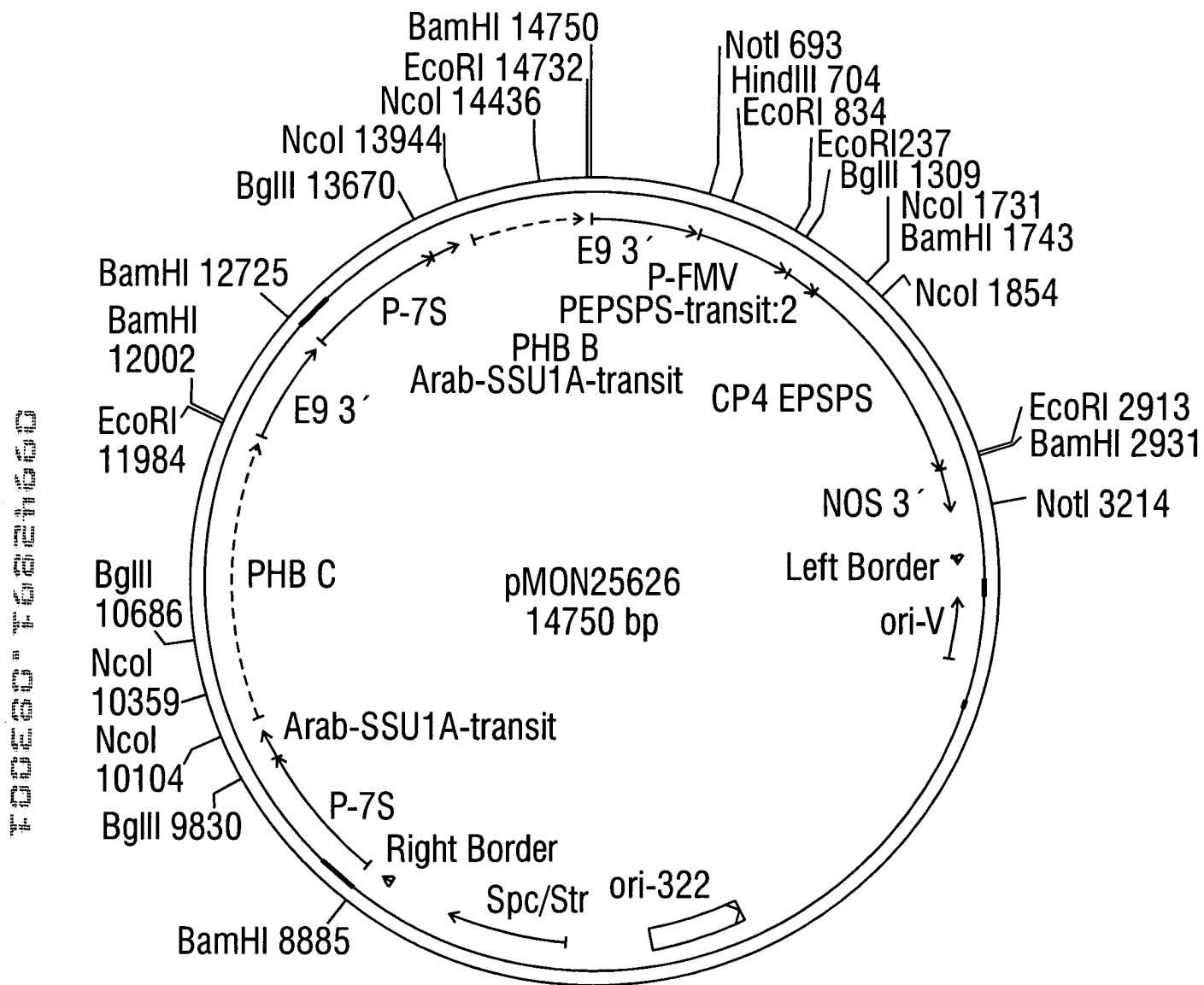


FIG. 21

FIG. 22

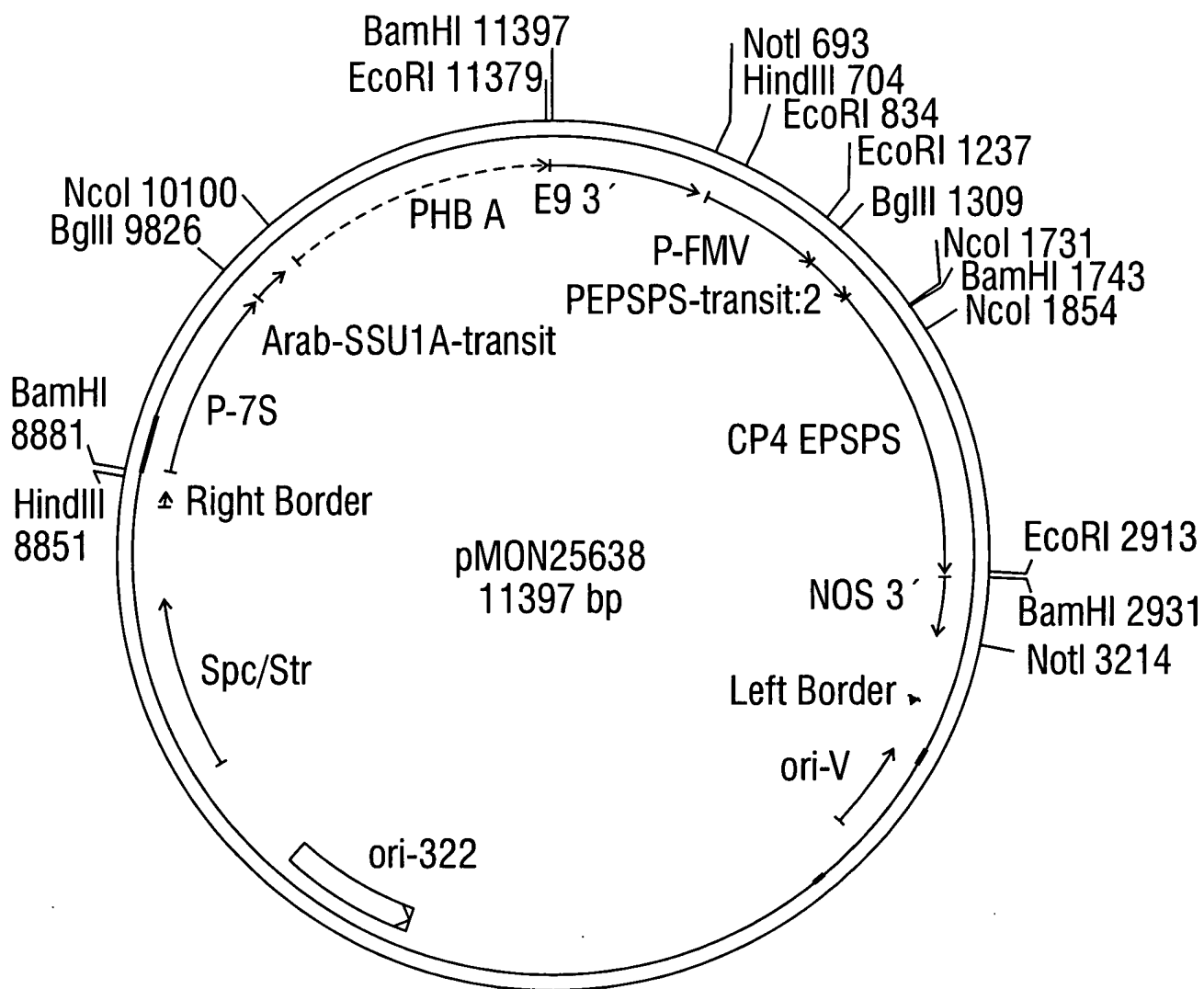


FIG. 22

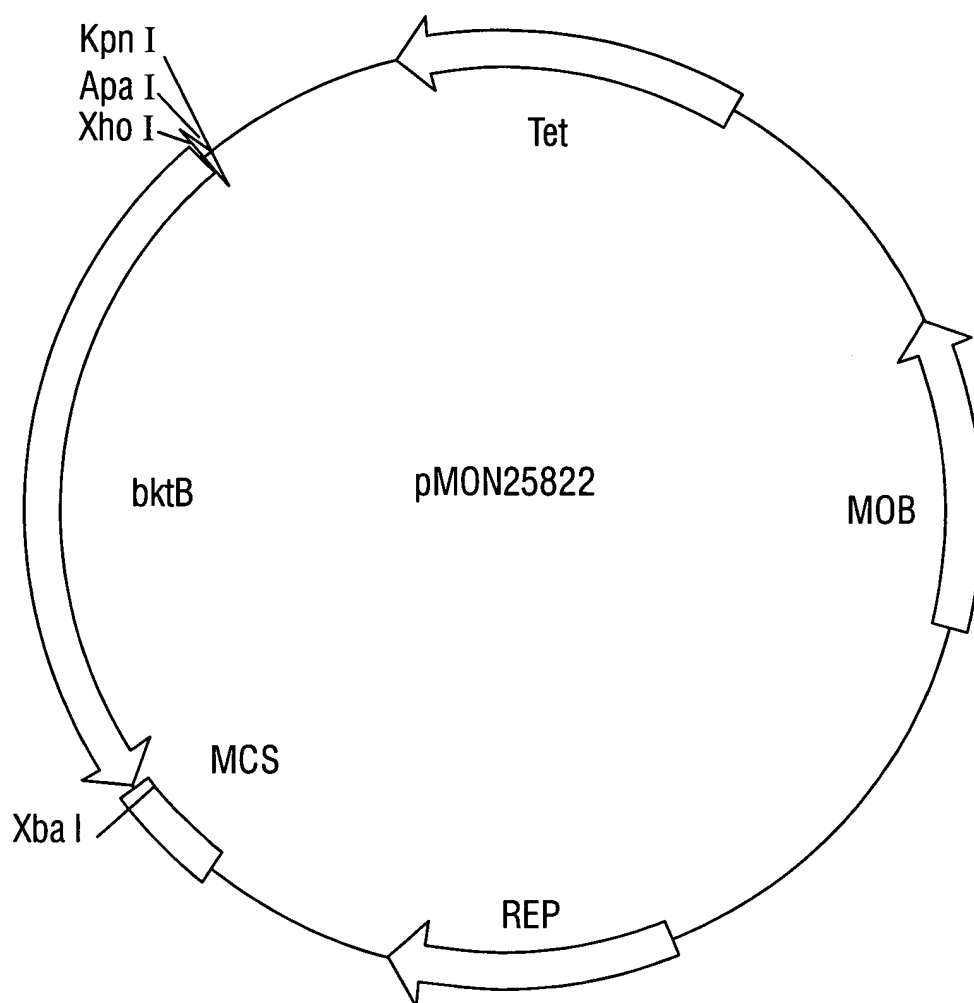


FIG. 23